U. S. Railroad Retirement Board

Application Domain Architecture

Application Domain Architecture
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Application Domain Architecture Definition

The mission of this domain is to define high-level principles to be used to evaluate solutions to support business processes. It has two components.

1) To define principles used to guide us in making a decision whether to build or acquire an application system in response to existing or new business requirements. This includes an analysis of enhancing existing systems.
2) To define principles we will follow to acquire (i.e., buy or lease) and implement packaged (COTS) solutions.

Domain Technology Categories

- Administrative
- Programmatic

Application Domain Principles Summary

1. Establish and prioritize business needs/requirements before proceeding with a purchase decision.

2. All build/buy decisions will consider using existing systems and technology in whole or in part.

3. Where possible, give preference to industry-proven products with a significant market share and a stable or increasing client base.

4. Maintain a reasonable level of currency with product releases.

Domain Relevant Trends

- Budget constraints and limitations
- Aging and decreasing workforce
- Increasing move to alternative platforms
- Greater push to make government more accessible
- Greater customer choice in ways to interact with RRB (Web, IVR)
- Increasing use of supplemental services (outsourcing, contracts)
- Increasing pressure to use commercial sources
- Increasing emphasis on improved financial management
- Greater number of vendor/product offerings in certain business areas
- Impact of vendor/product lifecycle from infancy through maturity
- Shifting partnerships/ownerships among vendors
- Increasing speed of technology evolution
- Increase in cross-servicing among government agencies (fee-for-service agreements)

Background of the Application Domain and Its Related Technologies at the RRB

The need for a new application on either the administrative or programmatic side of the agency arises from business requirements that must be met. These requirements may be:

- ➢ the result of finding a solution to a problem (increasing productivity, improving customer satisfaction);
- ➢ imposed by mandate (legislation or directive); or
- ➢ required by another governmental entity.

The initial phase of a project involves defining the full set of business requirements in enough detail to evaluate possible solutions. The process of defining the problem and investigating possible solutions must take into account the following factors:

- ✓ When the solution must be implemented;
- ✓ The availability of resources (staff and dollars);
- ✓ Existing processes which can be used in part or in whole;
- ✓ Existing technology (both internal and external); and
- ✓ Existing off-the-shelf products.

Each alternative should be clearly defined and describe how it meets the business and technical objectives. Proposed solutions often include alternatives between in-house development of specialized programs and procurement of packaged software. Estimated costs and development timeframes are provided for each alternative. If projected costs are expected to exceed 1% of the agency's fiscal year information technology obligations, a cost-benefit or a cost-effectiveness analysis is required.

Detailed Domain Principles

Domain Principle 1

Establish and prioritize business needs/requirements before proceeding with the purchase decision.

Rationale:

- Mandatory versus desirable requirements breakdowns aid in the evaluation process
- Delineating the requirements may help to determine how well the purchase meets the overall architecture requirements
- The more that is known about user/RRB needs, the better the chance of meeting those needs

Implications:

- Need to communicate changes/ "new stuff" – avoid surprises
- Greater likelihood of spending more time in requirements
- RRB must train users in identifying requirements and establishing priorities
- RRB must train developers in evaluating requirements and in considering the ability of existing components to meet those requirements
- User and purchaser must communicate earlier and more frequently throughout the acquisition process
- There is a possibility of not finding anything to meet RRB needs

Domain Principle 2

All build/buy decisions will consider using existing systems and technology in whole or in part.

Rationale:

- Don't reinvent the wheel
- Get more benefit out of existing investments
- Cost savings
- Product is proven (has been tested)
- Reduction of learning curve (in some instances)
- May lead to a quicker implementation time

Implications:

- May be developer resistance to reuse versus new opportunity for creativity
- Need to know existing product and module base
- Need for more precise documentation of capabilities at the module level
- Need for effective communication about common resources
- Impact of errors get compounded
- Need to coordinate with a greater number of stakeholders in the change process
- Investigate the existence of Administrative applications within other agencies before making the build/buy decision
- Similar Programmatic processes existing in other agencies or institutions generally do not fit our specific requirements

Domain Principle 3

Where possible, give preference to industry-proven products with a significant market share and a stable or increasing client base.

Rationale:

- Establish a long term relationship with the vendor
- Learn more about the product
- Build skills related to the product
- Have greater ability to share product knowledge
- Ongoing technical support and product upgrades
- Online support via the Web
- Hopefully fewer problems
- Greater likelihood of compatibility with other products
- Greater likelihood of vendor consulting support if necessary

Implications:

- Risk of missing the “next big thing” – opportunity cost
- May lead RRB to stay with certain technologies too long
- Need to provide resources for User Group participation or other means of vendor feedback
- Increased probability of being able to participate in cross-servicing programs with other agencies (fee-for-service transactions)

Domain Principle 4

Maintain a reasonable level of currency with product releases.

Rationale:

- Ensure product functionality
- Take advantage of new features and fixes
- Avoid large staff demands to “catch-up” with current technology

Implications:

- Need to consider staff and money availability
- Changes may require user and/or system administrator training
- Need to be aware of release availability/versions

Domain Participants

Domain Team Leader: Elayne Schempp

Line of Business Representatives: Paul Ahern, Reggie Wiedman, Keith Earley

Domain Participants: Tom Kolavo, Kris Garmager, Frank Cassarino, Pat Gale

EA Representative: Robert LaBerry

Appendix 1: Conceptual to Domain Principle Matrix

	Relationship Between RRB's Domain Principles And Conceptual Architecture Principles																								
Domain Principle	***Conceptual Architecture Principles***																								
	CA1	CA2	CA3	CA4	CA5	CA6	CA7	CA8	CA9	CA10	CA11	CA12	CA13	CA14	CA15	CA16	CA17	CA18	CA19	CA20	CA21	CA22	CA23	CA24	CA25
D-1			X	X							X														X
D-2											X	X		X							X				
D-3					X						X							X				X			
D-4					X							X	X												

Conceptual Architecture Guiding Principles:

1. Use guidelines consistent with the Federal Enterprise Architecture. 2. Support a single Enterprise Wide Technical Architecture (EWTA). 3. IT projects are to be consistent with the Enterprise Architecture. 4. IT projects are to be consistent with the Enterprise Architecture. 5. Reduce integration complexity. 6. Technical architecture must be extensible and scalable. 7. Manage information and data as enterprise-wide assets. 8. Validate information as close to its source as possible. 9. Enhance the ability to capitalize on and exploit business information. 10. Support multiple data types. 11. Make an informed buy versus lease versus build decision before proceeding with any new development project. 12. Require shorter development cycle times. 13. Keep current with emerging technologies and their applicability to enterprise architecture. 14. Maximize infrastructure asset reuse. 15. Sustain reliable connectivity. 16. IT systems will be implemented in adherence with the agency's security, confidentiality and privacy policies. 17. The agency will use a consistent set of security interfaces and procedures. 18. Reduce total cost of operation (TCO). 19. Extend E-Mail to Become a Corporate Information Exchange Vehicle. 20. Adopt Open Systems Standards. 21. Reduce duplicate information systems. 22. Reduce duplicate information systems. 23. Maximize and exploit Internet and Intranet technologies and approaches. 24. Integrate Enterprise Architecture into the investment management process. 25. Customer perception is a measure of the quality of the automation processes.